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SPECIFICATION FOR RANGING RODS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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SPECIFICATION FOR RANGING RODS

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SPECIFICATION FOR RANGING RODS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 February 1963, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Engineering Division Council.

0.2 Ranging rod, also known as ranging pole or picket, is generally used in field surveying for ranging out or aligning of long lines on the ground. In brief, this means putting in a series of pegs or other marks such that they all lie on a straight line joining two fixed points or on a straight line running in some fixed direction starting from one fixed point or at right angles to another line. These rods are used for marking points in such a way that the positions of the points may be clearly and exactly seen from some distance away.

0.3 Usually in a set of ranging rods, one or two off-set rods are also included. These rods are occasionally provided with two short, narrow vertical sighting slots passing through the centre of the section at right angles to one another and set at about the eye level. These rods are intended for roughly setting out lines at right angles to the main line.

0.4 Taking into consideration the views of producers and consumers, the Sectional Committee responsible for the preparation of this standard felt that it should be related to the manufacturing practices followed in the country in this field.

0.5 Wherever a reference to any Indian Standard appears in this specification, it shall be taken as a reference to the latest version of the standard.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960 Rules for Rounding Off Numerical Values (*Revised*). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

0.7 This standard is intended chiefly to cover the technical provisions relating to ranging rods, and it does not include all the necessary provisions of a contract.

1. SCOPE

1.1 This standard covers the requirements for ranging rods.

2. SIZES

2.1 Ranging rods shall be of two sizes, namely, one of 2 metres and the other of 3 metres.

3. DIMENSIONS AND TOLERANCES

3.1 Dimensions and tolerances for the ranging rods shall be as given in Table I.

TABLE I DIMENSIONS AND TOLERANCES OF RANGING RODS

(*Clauses* 3.1 *and* 5.3)

All dimensions in millimetres.

SIZE	OVERALL LENGTH *L*	*NOMINAL DIAMETER *D*	LENGTH OF BAND *l*
2 m	2 000±10	30	200±3
3 m	3 000±10	30	200±3

*In the case of mild steel tubes conforming to IS : 1239-1958 Specification for Mild Steel Tubes and Tubulars, the nominal bore size shall be 32 mm.

4. MATERIAL

4.1 The ranging rods shall be constructed from any of the following materials:

a) Well-seasoned, straight-grained timber of circular cross section of the following species:

TRADE NAME	BOTANICAL NAME
teak	*Tectona grandis* Linn. f.
blue pine	*Pinus wallichiana* A.B. Jacks.
sissoo	*Dalbergia sissoo* Roxb.
deodar	*Cedrus deodara* Loudon

b) Light alloy tubing conforming to IS: 1285-1958 Specification for Wrought Aluminium and Aluminium Alloys, Extruded Round Tube and Hollow Sections (For General Engineering Purposes); and

c) Mild steel tubes conforming to IS: 1239-1958 Specification for Mild Steel Tubes and Tubulars suitably protected against corrosion.

4.2 Hollow cast shoe or one made from a steel sheet shall be used.

5. CONSTRUCTION

5.1 The ranging rods shall be straight and free from warps. The ranging rods shall be of one piece construction in 2-metre length and in the case of 3-metre length, the rod may be of one piece or with a joint at 2-metres. To facilitate extension in wooden ranging rods, a ferrule of 30 mm length may be provided. The deviation in straightness shall not exceed 5 mm in a 2-metre length.

5.1.1 The rod shall have a provision for securing together 1-metre extension to the 2-metre or 3-metre rod in order to permit a 3-metre or 4-metre rod to be made up. More than one such extension shall not be normally provided.

5.2 The ranging rod may be detachable into sections if extensions are provided.

5.3 The ranging rod shall be painted black and white or red and white in alternate band lengths (*see* Fig. 1). The length of band shall be according to Table I.

5.4 Off-set rod (that is, the rod from which an off-set line is aligned) shall have two short narrow vertical slots passing through the centre of the section at right angles to one another and set at about the eye level (*see* Fig. 1).

5.5 The bottom end of the ranging rod shall be fitted with a pointed, hollow, cast iron shoe or steel sheet shoe of 15 cm length (*see* Fig. 1).

6. STAND

6.1 When a rod is to be kept in position after centring over a mark, one of the following accessories may be provided:

a) A folding support, or
b) A tripod stand.

7. MARKING

7.1 Each rod shall be legibly and permanently engraved with the manufacturer's name or trade-mark.

7.1.1 The ranging rods may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that Standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the Standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution

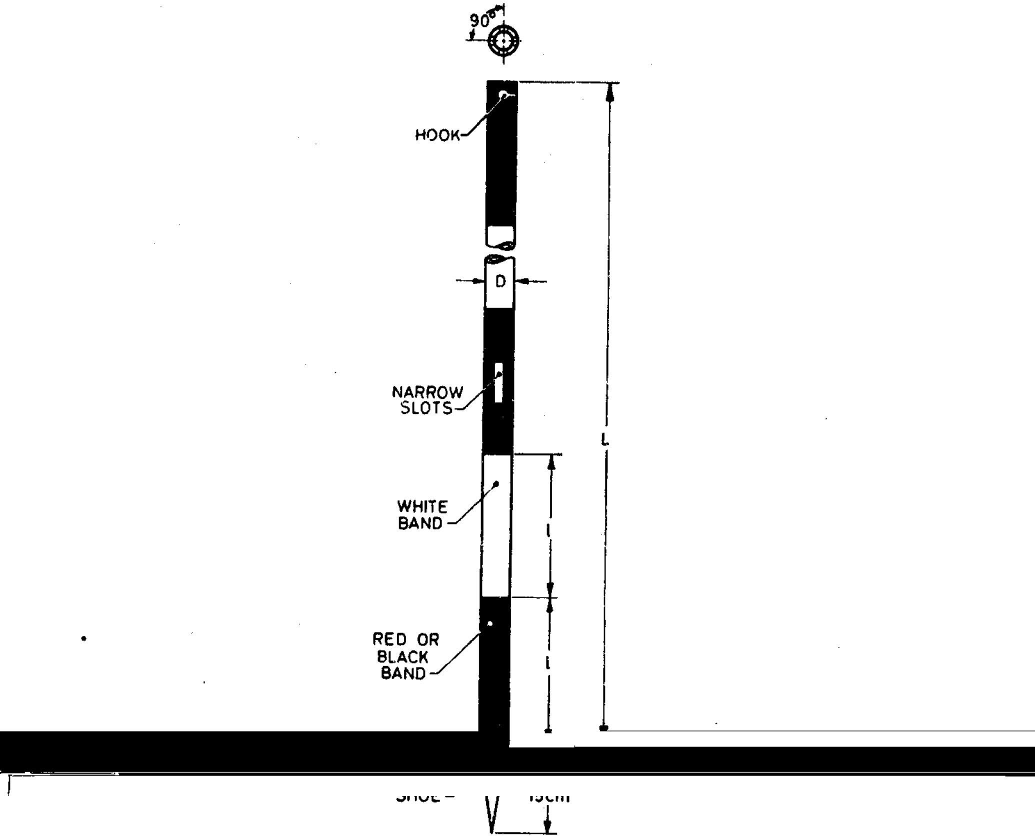

FIG. 1 OFF-SET RANGING ROD WITH HOOK AND SHOE

8. PACKING

8.1 The rods shall be suitably packed as agreed to between the purchaser and the manufacturer.

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